REMARKS:

Claims 12-15 are in the case and presented for consideration.

The claims have been amended to conform to US patent requirements and in vew of the Examiner's rejection of the claims under 35 U.S.C. 112. The claims are now believed to be in proper form.

The Examiner has also rejected the claims as being fully anticipated by the Japanese reference JP35809095A, however, for the reasons to be set forth in detail below, the claims are now believed to be patentable over this and over all of the other references cited as of interest, so that the application and claims are now believe to be in condition for allowance.

The purpose of the invention is to carry out a specific kind of engraving on raw meat or on partially-raw meat, for example, but not fully processed or ready for consumption meats, and it is applied regardless of the portion or size of the meat. The raw or partly prepared meat can be in big, medium-size or small pieces or even in micro slices or grains (e.g. ground meat).

These meat products will not have undergone a full processing regime, as for example with hams and cold meats in general, for the method utilized must be applied on the meat in the natural or near natural state.

It is well known that the traditional ways of marking meat in its raw or partially-raw state, take place on big pieces of meat, that is, those pieces cut and sold in big sizes to cold-storage companies in general, being later on cut into smaller pieces to arrive at the final consumer, or to be industrially processed.

These traditional ways of marking take place, as a rule, through the application of artificial inks, which have several faults, such as blurring so they cannot be read and the

description on the piece of meat becomes meaningless. The ink marks can also be taken off through washing or through cutting the marked piece, or have various other already traditionally known faults.

The laser, from its invention, has been frequently utilized for different functions, mainly by industry, and it is created at different frequencies of light. It is well known that the laser (Light Amplification by Stimulated Emission of Radiation) is of different kinds, e.g. "solid" and "gas" lasers, the wavelengths of which also have different characteristics, for example, are in the infrared (IF), ultraviolet (UV), or other wavelengths of light.

The quality and the type of laser utilized significantly alters the process obtained, for each one has and generates different characteristics from the other. One can not say, then, about the use of a laser in a generic form, for each type has its qualities, advantages and faults. The potency utilized also alters significantly, for as the objective of the present invention is to mark raw and partly raw meat, depending on the potency utilized, there will not be the "ablation of fat," external and/or internal, of the carneous body.

The main object of laser applied on any product, mainly on food, aims the enlargement of light through a radiation stimulus. The application of laser also varies according to it wavelength, of the direction of propagation of its bundle, of the product that it intends to reach and of the purposes it intends to produce.

In this order, any person can use laser application equipment in a manual or electric/electronic form, however, its form of application and purpose are totally different from each other.

For purposes of clarifications, the object of this invention aims, as presented in the specification, to produce marking or engraving on the external surface of meat in general and the resulting product, characterized by the fact that the means of marking or engraving

are (1) automated or manual, apply engravings in low or high relief in at least one of the external surfaces of meat of any kind, in any physical state and temperature, coming or not from the preparation phases.

As gathered and with purposes of clarifying within the legal limits of what has already been declared as material and technical aspect of the present patent application, the intention of the applicant on developing this marking device and method and obtaining the resulting product, derived from the fact that the applicant was linked, in business terms, to a big industry in the area of meat trading, and thus wishes to permit that his products are marked, in natura, in any size, by means of laser beam, applied through equipment specially developed for this purpose, for crude meat, as a rule, have a totally fatty texture, that is, after the cut, the cover of the meat is very fatty, making the application of laser difficult, mainly CO2 (note the specification supported "gas laser" of claim 12). Even after being cut into smaller parts and the fatty cover is taken off the carneous body, it is important that the engraved marks produced by the device of the present invention still be visible.

The application of a gas (e.g. CO2) laser, permits a high fixation of characters, whatever they are and, for being applied through high potency, it can reach and carry out applications in low relief (i.e., a deeply engraved mark).

The applicant carried out extensive research and studies with the purpose of managing to apply a laser mark on the raw or partially-raw meat, without using any other instrument in contact with meat, that is, the meat is put on a mat (the "holding means" of claim 12), without human touch and without putting any object on it (like the metal plates of the cited Japanese reference) and the equipment specially developed for this purpose identifies the type of meat, its size, its texture (via a sensor) and focuses its light bundle on

any of its exposed surfaces or parts (via the PLC) to engrave in low or high relief the characters that are necessary to it, that is, the "mark."

Only after the marking of the meat in the raw or partially-raw form, the same is prepared and may or may not be cooked, baked or receive a similar process for final consumption. The laser mark on the raw or partially-raw meat further does not disintegrate after the subsequent preparation of the meat for final consumption, and this is one of the great advantages of the invention of the prior marking techniques and devises, because it permits the process of engraving with quality in high or low relief, particularly low relief, with the purpose of keeping the identification standards of the said engraving and permitting that the same is identified even after receiving further preparation for consumption.

In this light, the applicant wished to highlight three characteristics of the invention, which differentiates it best from what had already been done in the market, and was known in the prior art:

The application of laser takes place on raw or partially-raw meat;

The equipment utilized permits the identification of the size and type of the meat (the PLC and sensor of claim 13); and

The meat's texture is identified the help form the correct light bundle of the laser permitting the engraving in low or high relief, without the risk of losing the said engraving or the same being disintegrated after further for consumption.

There is no application of any object or equipment in contact with the meat to permit and facilitate the localization of the bundle of laser light, with the purpose of avoiding human contact and risks of contamination by external factors.

In claim 13, including the PLC or "programmable logic control" feature, this type of engraving by laser needs its own equipment, for it dispenses with the use of instruments in physical and direct contact with the meat to be marked or engraved, aiming to indicate the focus that it must reach on the meat, as well as the characters that it must mark. This equipment that is supported by the application as filed, aims to interact the radiation of the light bundle with the absorbed matter, in this case the raw or partially-raw meat, reflecting and marking the previously determined characters, without the use of any other instrument in physical contact with the meat. Thus, the meat remains totally protected from contact with other external means, avoiding risks of contamination, degeneration, etc.

One observes that the claimed device permits the recognition of the type of meat to be marked, its texture and/or grammature, besides controlling the nuances of the engraving, shapes, writings, drawings and other information, conforming the engravings in low or high relief.

With the purpose of clarifying again and exemplifying the device and method utilized in this object of the present invention to the Examiner, the texture of the meat to be marked, as well as its size, directly reflects on the type of characteristic that will be marked, for a small piece of raw or partially-raw piece meat, in the size of 2x2x2x2 cm^2, is totally different from what is applied in a big piece of meat in the size of, for example, 1x1 m^2.

The cover of the product and the focus that will create the cavity marked is also another factor that highlights this novelty, for it can be recognized in laboratory analysis, generating and facilitating the identification of the product.

In consequence of this, one adds another differentiating characteristic resulting from the object to the patent described in claim 13. The means of marking or engraving takes place by means of calories or beams of adequate intensity, and this term "adequate"

reflects the technical requirement of the process to permit the engraving of characters in small portions of meat with the purpose of just keeping an identification on the same and being subject to recognition in any moment, as for example, in a laboratory analysis.

There is a great concern currently about food, having in mind a series of diseases, mainly of animal origin, transmittable to man (e.g. "bird flue"), as also issues of sanitary order to avoid contamination of the products in the moment of their industrialization and/or trading. With this objective, there is not in the national or international market any system of meat marking for tiny portions, identified by centimeters or even millimeters, once these have been often commercially, mainly in dishes "of the ready-for-consumption type, as is the case of lasagne, meatballs, strogonoffs and other types of dishes."

The object of this invention aims also the marking of one of more characters in small/tiny portions of meat, after being ground and that will be used in the preparation of other dishes. Thus, the invention permits the maintenance of the laser-made identification characteristics of the meat, which will be recognized through laboratory analysis, even after its utilization in the preparation of other dishes, with the purpose of just keeping its identification characteristics in the case of any need.

As the equipment now applying laser beam, specially developed for this purpose, has its own characteristics to identify the parameters of the bundle to be focused and the identification of the cavity to be applied on the raw or partially-raw meat, one also created the variables to be utilized according to the type of meat. Such variables that are quoted in the application by the passage "...of beams of adequate intensity, preferably regulated by PLC, with or without monitoring of sensors (R) that recognize the type of meat to be marked, its texture, grammature, besides controlling the nuances of the engraving, shapes, writings, drawings and other information, conforming the engravings (4) in low or high

relief."

In order to better clarify to the Examiner, such variables are scheduled as primary and secondary and it is these that will make the intensity of the beam adequate and regulate it, preferably by PLC. The order of these variables is turned to: identification of the meat, its size, texture, type of Laser beam to be applied, potency required to generate the desired effects and keep the standard/quality and guarantee of the marking, once the raw or partially-raw meat has different aspects of density and fat, the speed of application of laser beam, cavity that will be opened in the body of the raw or partially-raw meat and the amount of applications that will be carried out in the same carneous body, the depth of application and penetration of the beam aiming to reach the other extreme of the piece of meat. For meats of smaller size, the high concentration of the bundle and the potency of applied laser beam are those that will generate the excellence in the quality of marking, preventing its adulteration, as well as the waste of the piece of meat, for in case there is a fault in the process, the respective piece or portion of raw or partially-raw meat will be discarded and not utilized. Now, for the meats of bigger size, the concern is in the ablation, which first occurs through the ejection of particles of intact fat via explosive water vaporization.

This means of marking or engraving also aims to permit the engraving in raw or partially-raw meats in medium-sized and small pieces, which can be later processed and will not lose their identifications, even after being ground, for the beams applied on the meat permit the engraving in low relief and the same will be kept, even partially, guaranteeing their identification in the case of any need for laboratory analysis (e.g. if a batch of meat in a final processed food product is later found to be tainted).

The intention of this invention is just that of maintaining the identity and quality of

the engraving, regardless of the type of raw or partially-raw meat, its texture or size, avoiding the withdrawal or adulteration of the marking carried out and permitting its easy identification to get to its manufacturer/product in any case of need.

This object aims also to permit a better form of fiscalization and inspection by the sanitary public bodies of the different countries, which, with this mechanism, will be able to create legal rules with minimal instructions which must be contained in the products of raw or partially-raw meats as markings to identify the respective products, by means of laboratory technical analysis, a product that can be collected from anywhere in the world.

In consequence of this process one presented as characteristic of the said interactivity, through claim 14, that the device is further characterized by the means of marking or engraving, can be carried out through means that apply laser beams, the wavelengths of which are obtained by different components, being the beams regulated through PLC.

Finally, in consequence of what has been presented in claim 15, the device of the invention is characterized by the fact that the device for marking or engraving can be carried out through dispositives (3) of the hyperheated metallic head type through resistances or equivalents, with production of calory regulated to limit the surface (S) of the meat (2), as soon as it approaches or touches the same, conforming the engravings (4) in low or high relief.

As can be seen, the equipment utilized is unique, dispensing with any other identified, as well as object applied on the meat and in physical contact with this one, such as plates, laminas, dishes, glass, ceramics or any other material, with or without the identifiers of the characters that will be marked.

The Examiner is also asked to note that on the piece of raw or partially-raw meat

to be marked, there is no previous application/placement, in the manual form or by equipment, of any character facilitating or generating what will be marked by laser, or with the objective of facilitating the focus of laser with the characters to be marked being in contact with the carneous body.

Turning now to the teaching of the cited reference, JP358090985A, this reference while mentioning the use of a laser in connection with foods, does not provide sufficient teach to reach any of claims 12 to 15 and is totally different from those principles applied by the present invention.

JP358090985A mentions a method of application of marks as letters and drawings in food products, having as characteristic the engraving (printing) of letters in food products through the application of laser beam. The reference is totally dependent on its metal, ceramics or glass plate, containing letters or drawings in watermark style, installing the said plate in such a way that the laser beam applied goes through the drawn part, reaching the surface of the food product, engraving the letters or drawings. That is, it supposes that the meat has already been pre-drawn with the identification codes that will be marked by laser.

This prior art technology is also dependent, according to the Japanese reference, on the installation of the plate on the surface of the food product, engraving and printing the letters or drawings on food products through the application of laser beam.

This plate is utilized in all the other products marked or engraved by this method, pointed out in throughout the reference.

The reference further teaches (see its claim 8), food products to be engraved, meat-based products, becomes easily understandable and that the said food products are "derived from meat-based processed products", a principle repeated in its claim 16.

In the detailed explanation of the patent JP358090985, letter "d", the present

applicant points out and restricts the products as being those "meat-based processed: ham, cold meats, cold beef, roast pork."

In the sequence of the detailed explanation of the said anteriority, the applicant:

"..... (D) One applies laser beam on a metal plate, ceramics or glass stamp, with engraving of letters and drawings in high relief, warming this stamp at the necessary temperature, pressing it on the surface of the food product, engraving (printing letters and drawings. (indirect method). The marking of letters, drawings and commercial and/or industrial brands and others, in food products it deals with a matter of paramount importance. However, due to elevated costs for marking and obstacle for execution in scale, as previously mentioned, the reality is that it makes an efficient execution impossible. Thus, the marking of laser beam, proposed by the present invention, can not be considered the ideal form, but it will meet a good portion of our expectancies.....In the group of food products (d).....Ham, cold meats, roast pork, hamburger, roast chicken. .....".

In this order, one notices to be clear the presupposition that no identification of method and final product are colliding between the claimed invention here, and the cited reference.

While the applicant here claims a device for engraving on the external surface of raw or partially-raw meat, the Japanese reference teaches completely different characteristics and engraving methods. The cited reference never teaches or suggested a device that can treat carneous products of the raw or partially-raw type, for the manipulation of these permits a completely different technique, in the face of their internal and external fatty texture, it is a product with silky characteristics, having the wires and fibers of natural fat, which permits the application of a marking technique completely

different from that of a cold-meats product of the ham type and/or others identified by the patent JP358090985. In short, the present invention, for the first time teaches the claimed engraving device, in small parts for carneous products, with the purpose of keeping its identification even it is further processed.

The techniques and apparatus of the claimed invention and of the reference are very totally different.

Concerning the Examiner's statement that "no patentable distinction is presented in relation to the food product," one highlights that there is indeed the identification of the type of the product as being meat, and in any physical state and temperature, and with the purpose to clarify the objective is the raw or partially-raw meat, being able also to be in its natural or frozen state, being that the engraving method applied will not be taken off or adulterated, not even the meat being ground, for it will remain with points of engraving, which will permit its identification.

To the knowledge of the applicant and as evidenced by the prior art cited by the Examiner, no one has ever disclosed or used the claimed device of the present application for marking or engraving applied on the external surface in general and the resulting product, and also, having invested in searches for international patents, not identifying any process similar to the claims device.

One highlights again that the technique of use of laser beam is world-known and that the applicant carried out searches for patents to know if there is protection turned to its novelty, particularly applied on meats of the raw or partially-raw type, regardless of their size/portion, including ground meats, keeping the standards of the engraving and preventing their adulteration and withdrawal, once one developed an appropriate equipment for this purpose and that he will keep particles of the engraving in each and

every piece of meat, subject to be recognized through laboratory analysis. One highlights also that it is not the applicants intention to apply this technique to other food products that are not raw or partially-raw meats, keeping the in-natura qualities that generate quality, definition and maintenance of the marking carried out and by the invention.

As to the other references that were cited as of interest:

DE 19646813 – In the presentation itself of the patent, the inventor quotes the need of types of products turned to "sausages and cheese of liver and meat, besides other products, which present a firm consistency with graphic motives and individual figures represented in an accurate form". Here it is also turned away any technical collidences, for the products covered by both patents are different and so are the techniques applied, in face of the said anteriority needing a "firm" product, that is, already elaborated, totally different from the product utilized by the Petitioner who deals with "raw or partially-raw meat, in which they maintain their in-natura characteristics, that is, in soft state, fat and silky texture.

Also as seen in the claims of the said anteriority, its inventor disposes of a software of his own for this purpose, which identifies a figure to be marked on the food "already ready for consumption", a marking that reaches only a part of the food, dispensing with the others, being that, after the withdrawal of this marked part, the product becomes unprotected against the said identifications. Also, the present patent does not clarify if the said marking takes place in the aspects of low and/or high relief, reaching big and several parts of the product and with different projections of cavities in the product.

One also highlights that the method applied by the patent DE 196 46 813 A1 requires a regime of scanning, containing the equipment used in this one, a head of its own appropriate for this purpose, an object totally unknown and not applied or provided in the

present application.

JP 403211068A – The object of this patent also is totally turned away, once it aims the "installation for laser engraving of cheese or confectionery sweet", not reaching the products aimed at by the Petitioner of the patent 10/686,288 and also having techniques totally different from this one, once the laser engraving method of a "cheese permits characteristics totally different from those utilized in "engraving of raw or partially-raw meat."

EP 000685154A1 – This object of patent also aims at an activity different from the Petitioner's patent, once it relates to a "method for engraving matured cheese, of the Parmesan type". One also highlights in this patent that its inventor identifies the technical differences for engraving characters on a product of the type fresh cheese and of the type industrialized cheese, having each product different qualities and characteristics and permitting different methods.

It can be noticed that, if in a same product (cheese), its characteristic variables permit different processes and means of marking, let alone in completely different food products, as comparing a meat and cheese product, as also processed meat for raw meat, etc. It can not be compared, for example, the bark of a Parmesan cheese with the bark of a soft cheese, as it can not be compared the texture and malleability of a raw or partially-raw meat with an industrialized meat.

DE 003836821A1 – Being this patent turned to a process and apparatus to involve food with an engraving surface through a thermal treatment and food in such a way engraved, one takes as knowledge that the same is turned to diary products, meats and sausages, HOWEVER, this process relates to the obligatory use of a "laser thermal treatment", needing "to guarantee local heating of the food product to be treated". This

process is totally unknown and not utilized in the Petitioner's patent, once it limits itself to marking or engraving on meat of the raw or partially-raw type, including in frozen state, not permitting any thermal treatment, being that the previously quoted relates to the need of heating of the place of the product to be marked.

By analyzing also the characteristics pointed out in the claims of this patent, one confirms that the applied finalities and techniques are completely different from those applied and identified on the present application.

Thus, the claimed device, the techniques used and the final products are also completely different so that the application and claims are believed to be in condition for allowance and favorable action is respectfully requested.

Respectfully submitted,

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